THE BUSINESS OF SPACE

ACQUISITION

SMC/AXD
Acquisition Development

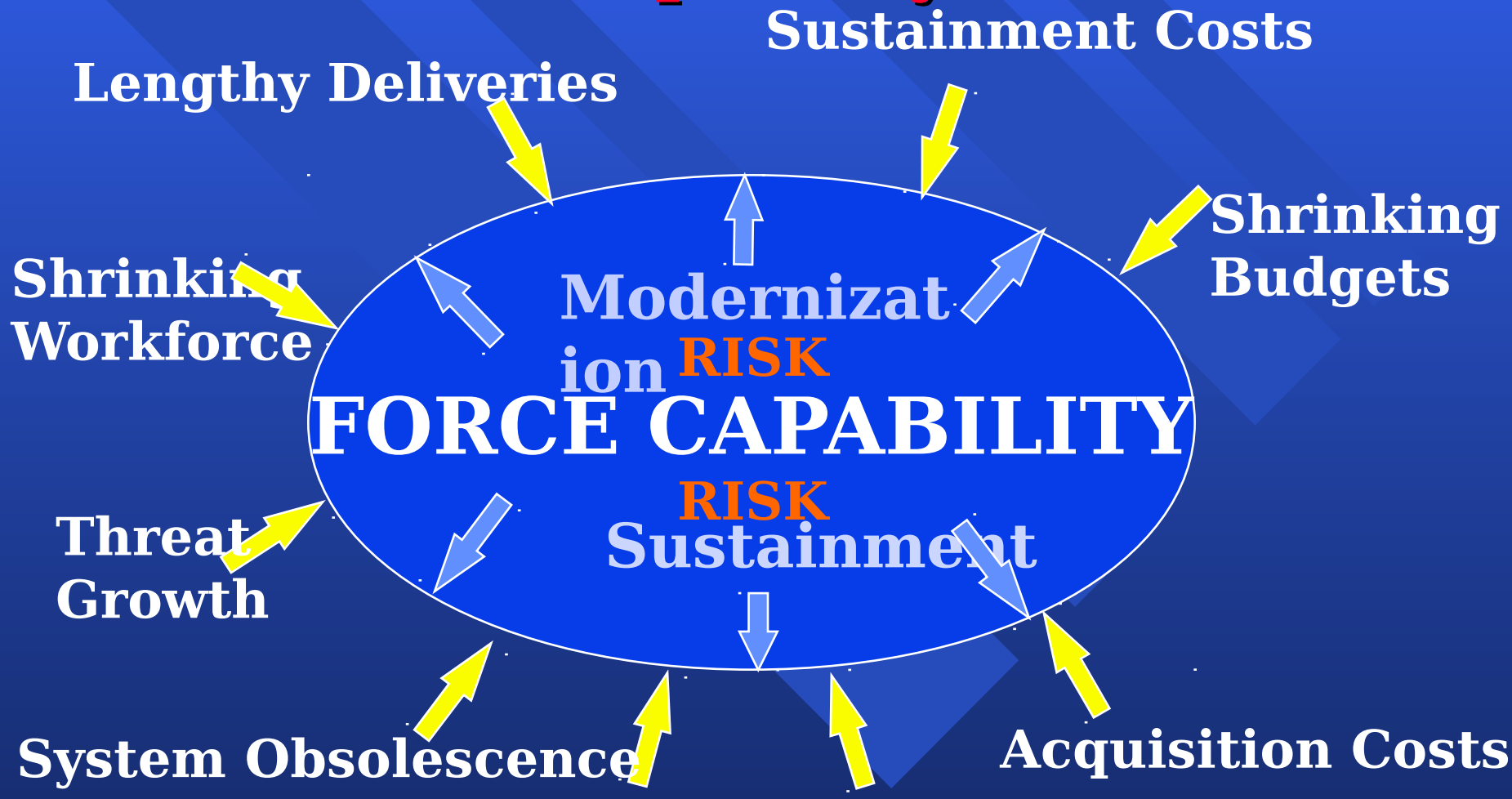
Agenda

- Acquisition Overview
- Acquisition Process: The Acquirers
- Space-Unique Aspects
- Acquisition Reform: Tools for Success
- What’s Next

ACQUISITION OVERVIEW

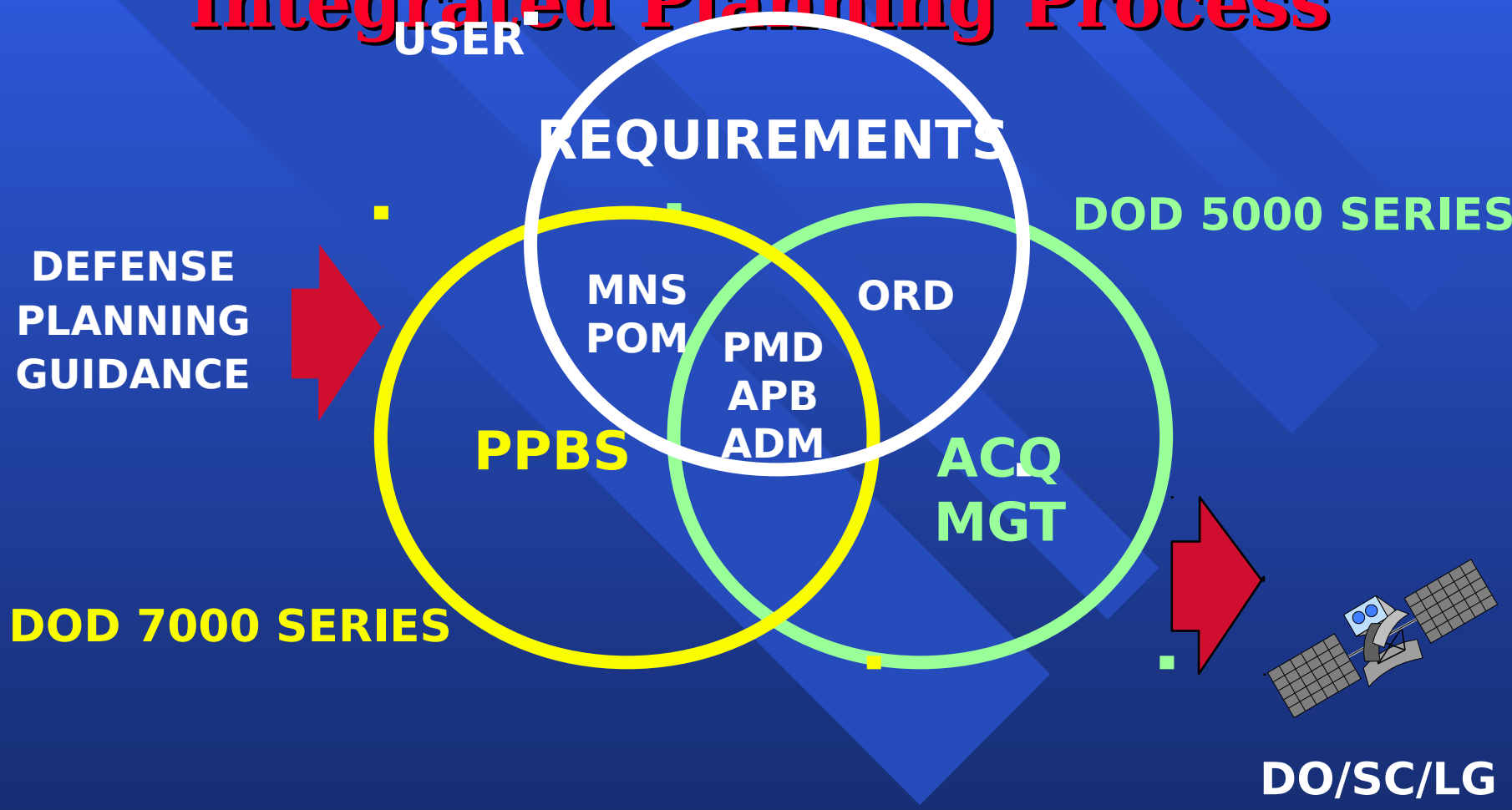
ACQUISITION OVERVIEW

The Challenge: Maintain/Expand Force Capability



ACQUISITION OVERVIEW

Integrated Planning Process



ACQUISITION PROCESS:
The Acquirers

ACQUISITION PROCESS: Key Players

ACQUISITION PROCESS

Acq Strategy Development
1. Understand requirements
2. Assess current technology
3. Determine potential vendors
4. Develop acquisition strategy

Path to Contract Award (Competitive)

Technical Baseline (Spec) Development
1. Write technical requirements documents
2. Include customer in process

Development
1. Write solicitation based on Strategy and Requirements Documents
2. Get Industry f

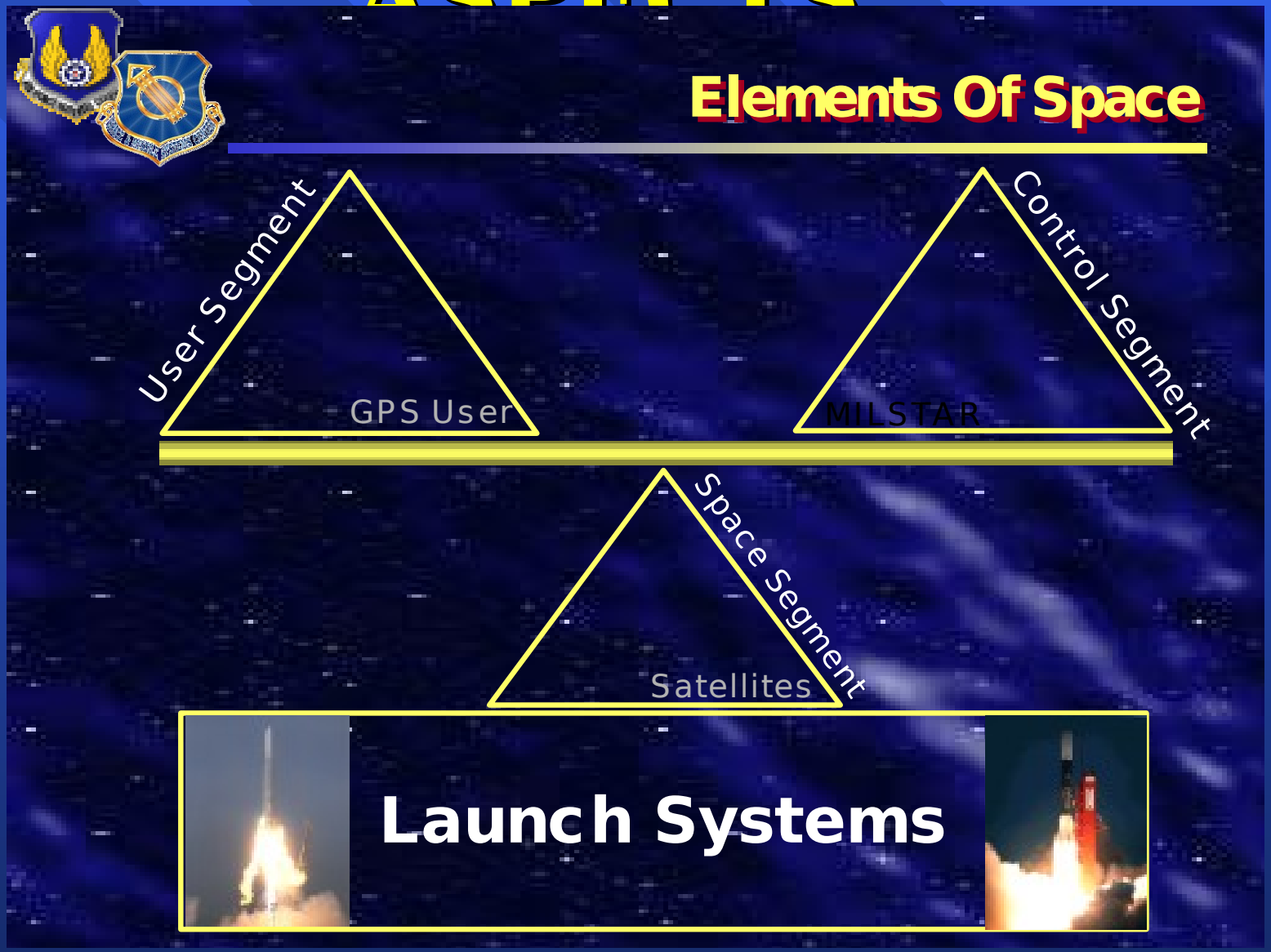
Source Selection Activities
1. Pick best contractor based on Cost, Technical and Past Performance

Contract Award

Contract Execution

SPACE-UNIQUE ASPECTS

SPACE-UNIQUE ASPECTS



SPACE-UNIQUE ASPECTS

Drivers

- Big-Ticket, Limited Quantity Products
- Harsh System Environment
- Limited Sustainment of Satellites & Boosters
- Commercialization of Space
- Massive Consequences of Failed Launch
- Unique Customers with Diverse Mission Requirements

SPACE-UNIQUE ASPECTS

Solutions

- **Performance Incentives: Award Fee**
  - More profit for: quality, mission duration, reliability
- **Design Solutions**
  - Radiation hardened electronics
  - High reliability parts
  - Extensive pre-launch testing
- **Launch Services**
- **Intra-Organizational Approach to Mission Assurance**
- **Operational Safety and Suitability Process**
- **Indemnification for Hazards of Launch**

New Lightning Bolts

Lightning Bolts 2001

#1 -- Focus on Results, Not Process

#2 -- Spirals: Success in Increments

#3 -- Roadblock Busters

#4 -- Breeding Innovators

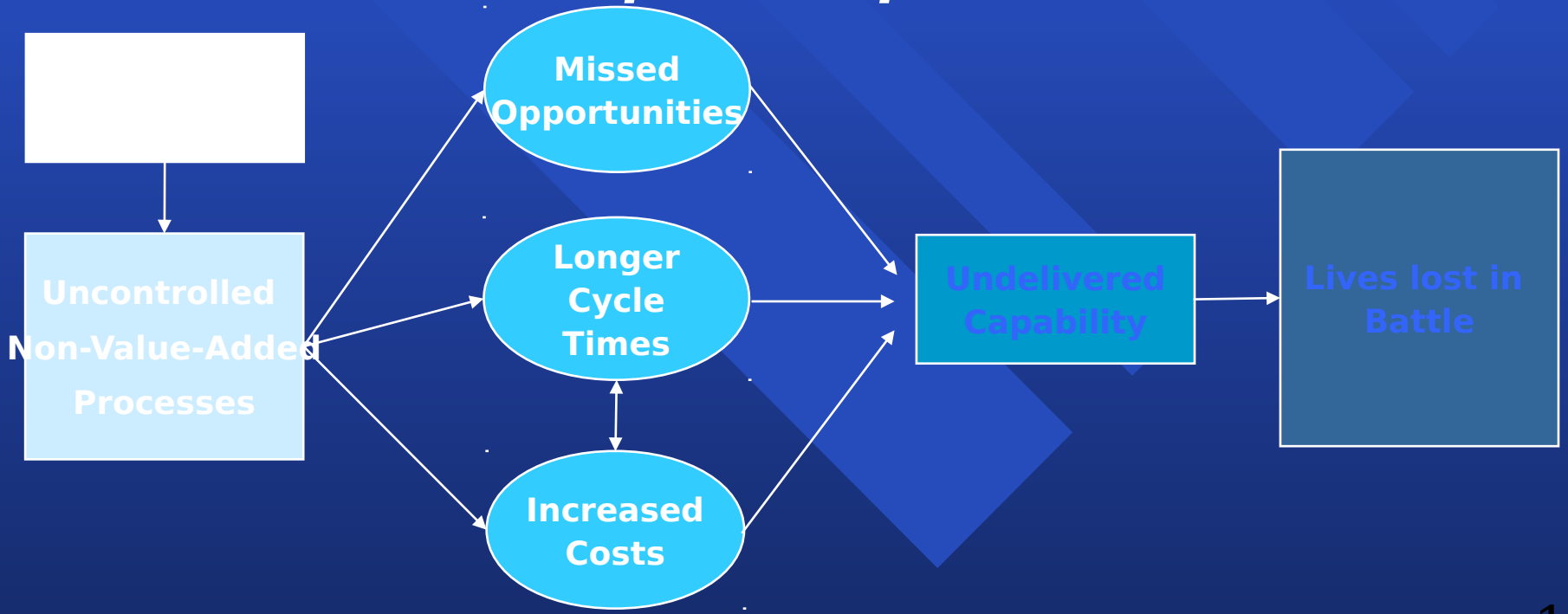
#5 -- PEO/Service Contracts

#6 -- The Knowledge Pipeline

Lightning Bolt #1
"Results, Not Process"

PROBLEM:

Risk aversion has created a cumbersome, manpower-intensive, time-consuming, unresponsive process



Lightning Bolt #1
"Results, Not Process"

SOLUTION:
In six months, a clean sheet of paper approach
for everything the AF controls

REVIEW ALL ACQUISITION REQUIREMENTS

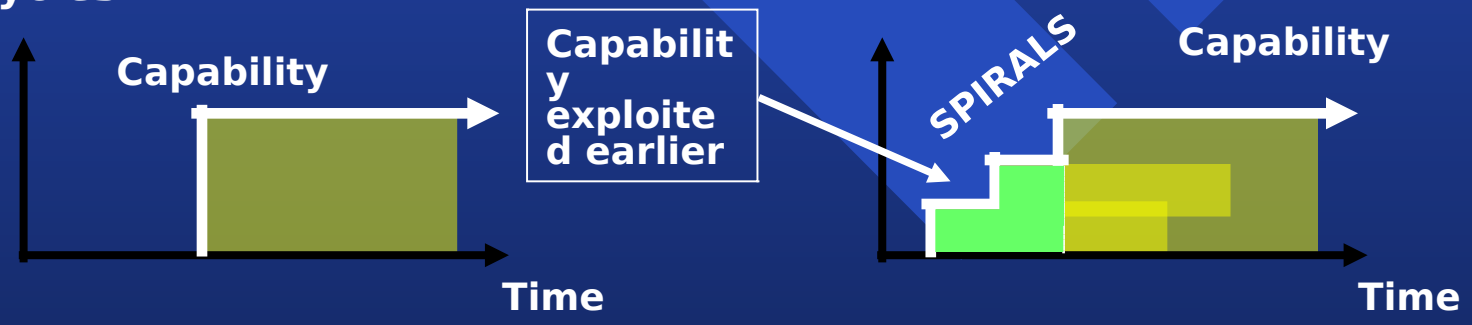
- **For ACAT IC and below, keep what's necessary; DISCARD THE REST!**
  - If it's not in the law, it's up for review
  - If it is in the law, challenge the implementation
- **Use NRO acquisition freedom and culture as a template for faster decisions**
  - OSD gave it to BMDO and SAF/US for space
- **Let managers manage. Force more authority and responsibility lower in the chain**
- **Tailor the process to the product. Flexibility is the key to agile acquisition**
- **Air Force write its own commercial-like FAR**

Lightning Bolt #2 Spirals: Success in

PROBLEM:
Writing fixed requirements at the outset for the life of a program thwarts agile acquisition

Without spiral development

- **Complete, pre-defined upgrades inhibit "learning through doing"**
- **Warfighters wait for capability because it's not "time" for a block upgrade**
- **OT&E "Single Big Event" not agile enough for today's technology cycles**



Lightning Bolt #2 Spirals: Success in Increments

SOLUTION:
Make (R)evolutionary ORD's and spiral development
the "way we do business"

- **Use (R)evolutionary ORD structure to support "spiral-learn-spiral" strategy**
  - Initial ORD drafts set spiral roadmap
  - Refine ORD writing and revising process
  - Operator, developer, tester interaction is key
  - Overcome culture of wanting 100% solution, fear of "creeping" requirements
- **Supportability considerations up-front essential to combat power**
- **Implement Spiral Testing: Operational assessments Vs. OT&E**
- **Broaden the definition and use of "commercial" contracting rules**

Lightning Bolt #3
"Roadblock Busters"

SOLUTION: Empower those who can prevent process from overwhelming progress

- **Establish AF Acquisition Center of Excellence (ACE)**
  - Modeled after NRO ACE -- responsible for acquisition support services to PEOs/DACs -- reports to SAF/AQ
  - Draws from multi-functional membership across AF and augmented by contractor support -- staffed with "Best-of-the-Best"
  - Centrally funded -- provided "free" to using organizations
  - Replaces current CAST/AST structure
- **Hold Commanders and Executive Directors accountable and responsible for change/improvement**

RITICAL MASS = RIGHT EXPERTS, RIGHT TIME, DECISIVE NUMBE

What’s Next?

Space Commission
Acquisition Impacts

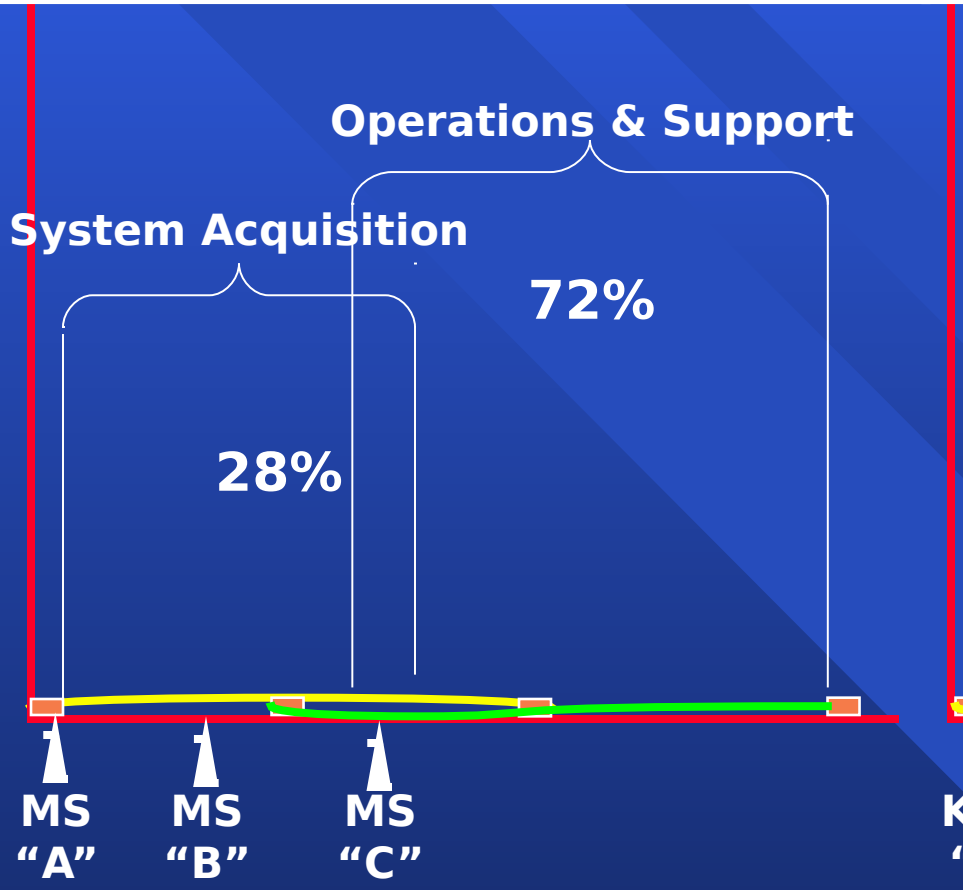
- Under-Secretary for Space
  - Potential SAF/AQ staff support
- SMC realigned under AFSPC
- SMC/CC to be PEO for space programs
- Draft USECAF Space Acq Policy
  - Based on NRO Acquisition Board (NAB) process
- Personnel development a key issue--in work
- Working to identify “Best Practices”

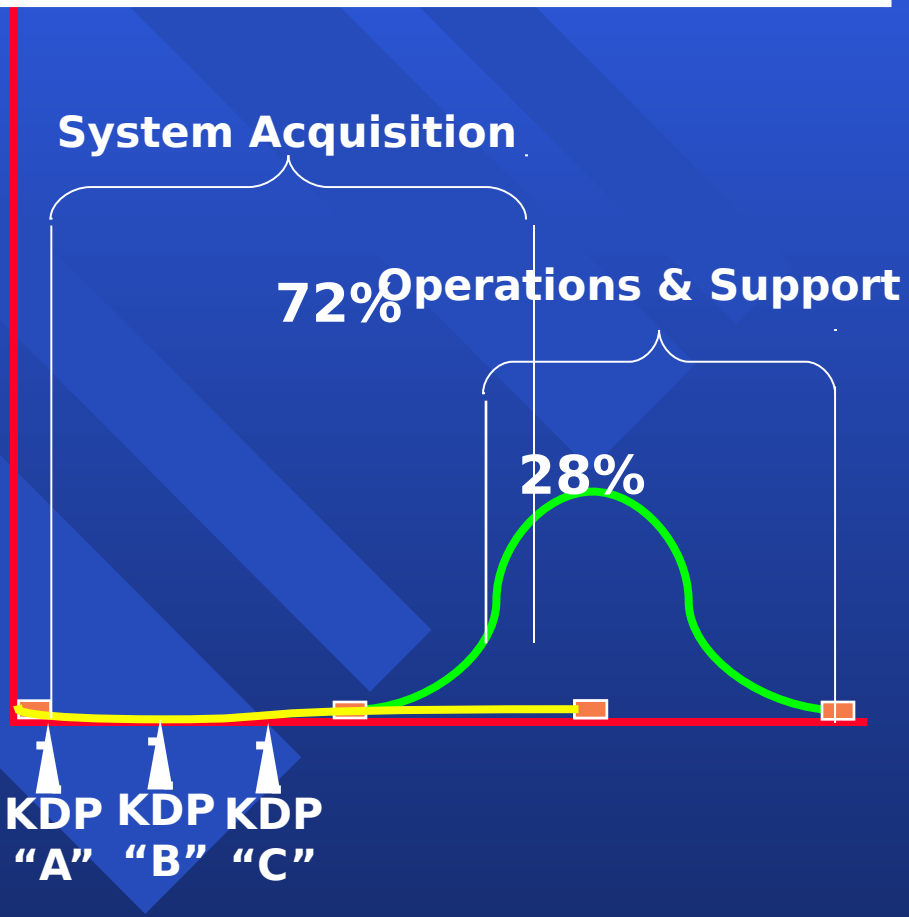
What's the Different between DoD 5000 & Draft USECAF Space Acq Policy

- New Acquisition Model tailored for space systems:
  - Emphasis is on development and launch vs O&M costs
- Acquisition Phase Reviews:
  - Key Decision Points vs Milestones
- Acquisition Categories:
  - ACAT I (Space) major and non-major vs ACAT (II-III)
- Program Review Process:
  - Single IPA "Peer Review" vs OIPT w/ multiple IIPTs & WIPTs
- Reporting: No DAES required
- People: DoD Space DAE with MDA & AF SAE = USECAF
  - AFPEO/SP = SMC/CC

Life Cycle Comparison

Typical DoD Life Cycle Cost Curve | Typical Space Life Cycle Cost Curve

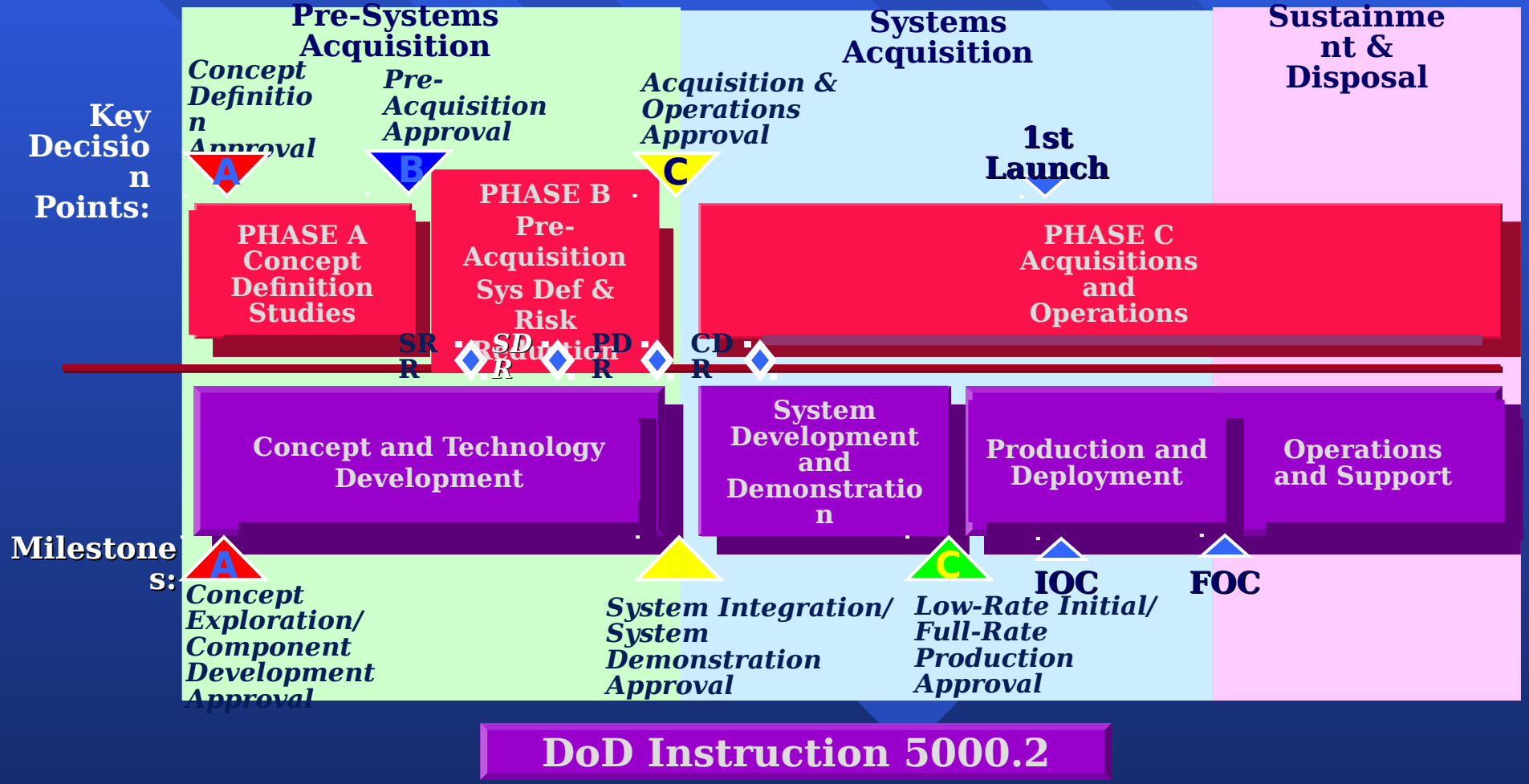




Life Cycle Curve DSMC Acq Log Guide 1997

Acquisition Phase

Draft USECAF Space Acq Policy 02-1
Based on NRO Dir 7



DoD Instruction 5000.2

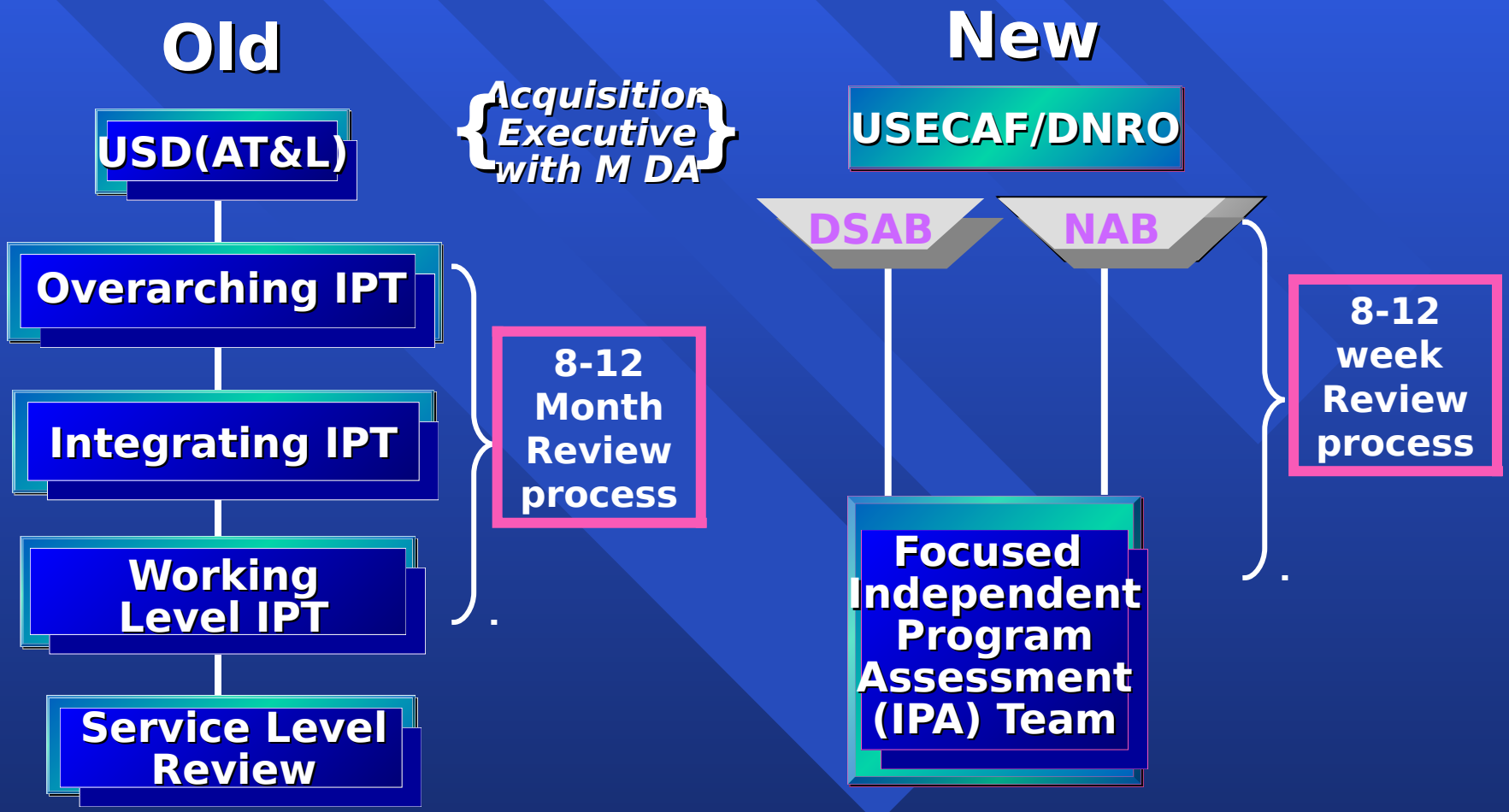
DSAB

- **Single meeting held to decide a program's readiness for proceeding into next acquisition phase (Milestone Decision) - typically held prior to RFP release**
  - Program manager presents program status and proposed approach to execute next acquisition phase
  - Independent Program Assessment (IPA) team presents assessment
- **Applies to MDAP (ACAT 1Ds & 1Cs) or "special interest" programs**
  - USecAF is DSAB Chairman and Decision Maker
    - » Determines Key Decision Points
- **Outside organizations invited to attend (Mission Partners, Stakeholders, and Users) and make recommendations to the Chairman**
- **Read-ahead packages to DSAB members 5 days prior to DSAB**
  - No pre-briefs except to PEO and MDA

PSAB

- **Single meeting (Milestone Decision) which mirrors DSAB in purpose**
- **Applies to Non-MDAP (ACAT IIs & IIIs)**
  - PEO/Space is single point Decision Maker
    - » Determines Key Decision Points
    - » May re-delegate to General Officer or SES
      - Except for Acquisition Program Baselines and interface control documents with mission/user community which must be reviewed and approved by AFPEO
- **More opportunities to abbreviate IPA scope & schedule**
  - Potentially less complex programs, fewer stakeholders, smaller values
- **Pre-Brief to Decision Maker 8 days before PSAB, approval to release read-ahead**
- **Outside organizations invited to attend (Mission Partners, Stakeholders, and Users) and make recommendations to the PEO/Space**
- **Read-ahead packages to PSAB members 5 days prior to PSAB**

Key Difference



Key difference is length of review process

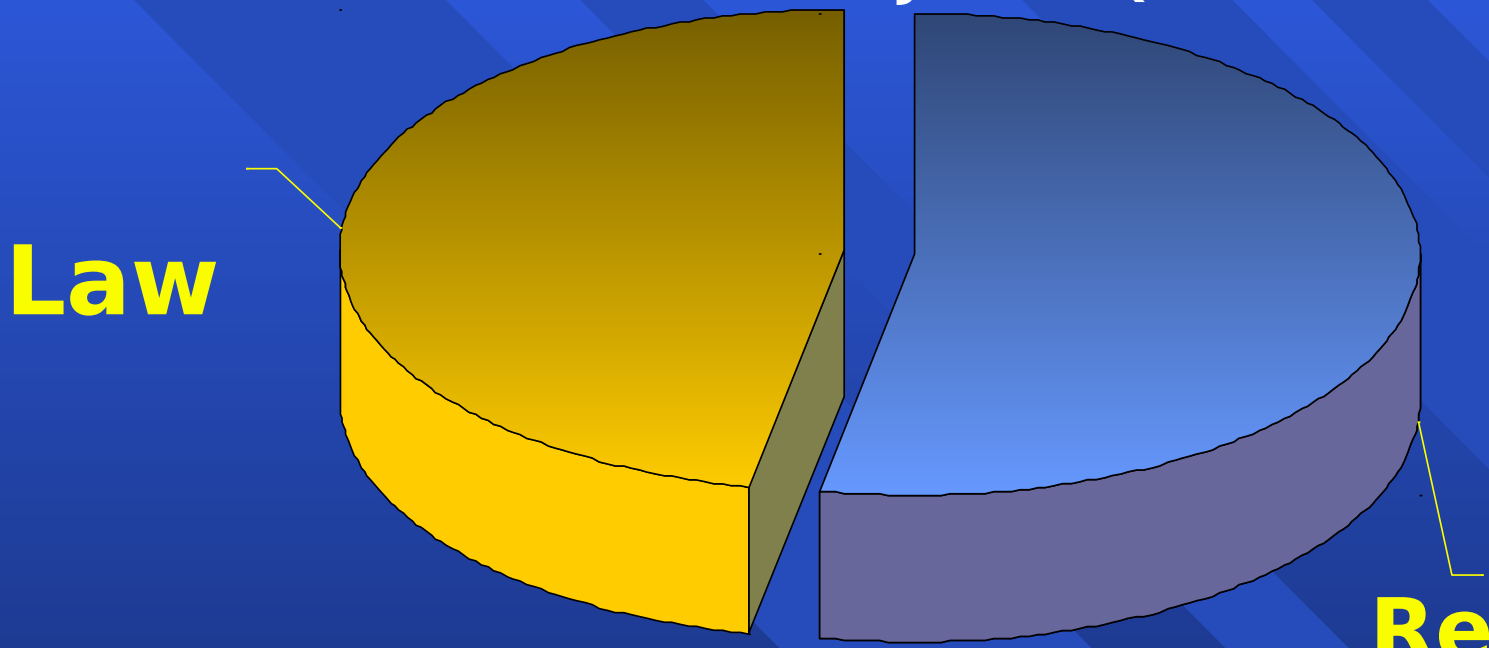
Summary

- Everything we do in acquisition is intended to
  - Provide the ***customer*** with equipment and services
  - that meet or exceed requirements
  - at a reasonable cost
  - when needed

Back- Up

Acquisition Requirements

DoD 5000.2-R SELECTED MAJOR ACQUISITION ACTIVITIES



Note: DOES NOT INCLUDE REQUIREMENTS BELOW DOD LEVEL

LESS THAN HALF OF MAJOR REQUIREMENTS ARE IN THE LAW

Lightning Bolt #2
Spirals: Success in Increments

For spiral development to work, the entire Air Force leadership must buy in and support it

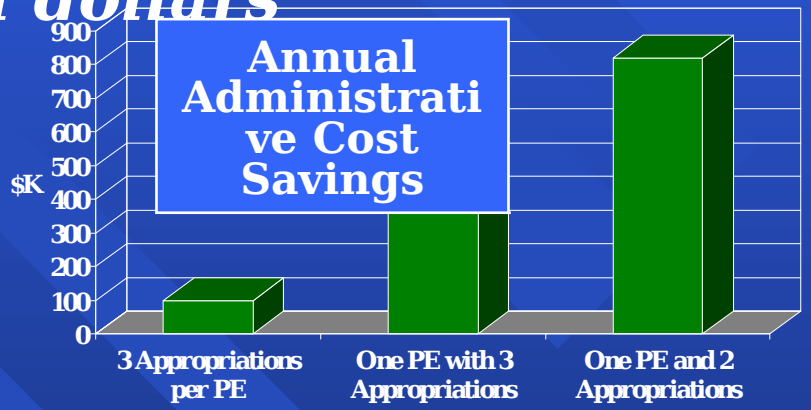
Accounting: Complex and Expensive

PROBLEM:
Overly complex administrative processes cost AF real dollars

- Many Programs have technical and programmatic commonalities
- Myopic treatment results in overlapping scope and multiple PEs, ACRNs, and CLINs

Program	FY01	Overlapping Scope
ISC2	$117M	$33.5M
GCSS-AF	$24M	$5.8M
TBMCS	$18M	$4.2M
GTN	$30M	$1.2M
CESAR	$20M	$6.4M
Total	$209M	$51.1M

- Example: ISC2 Contains 10 Program Elements, 36 ACRNs, 58 CLINs, and 367 Cost Accounts



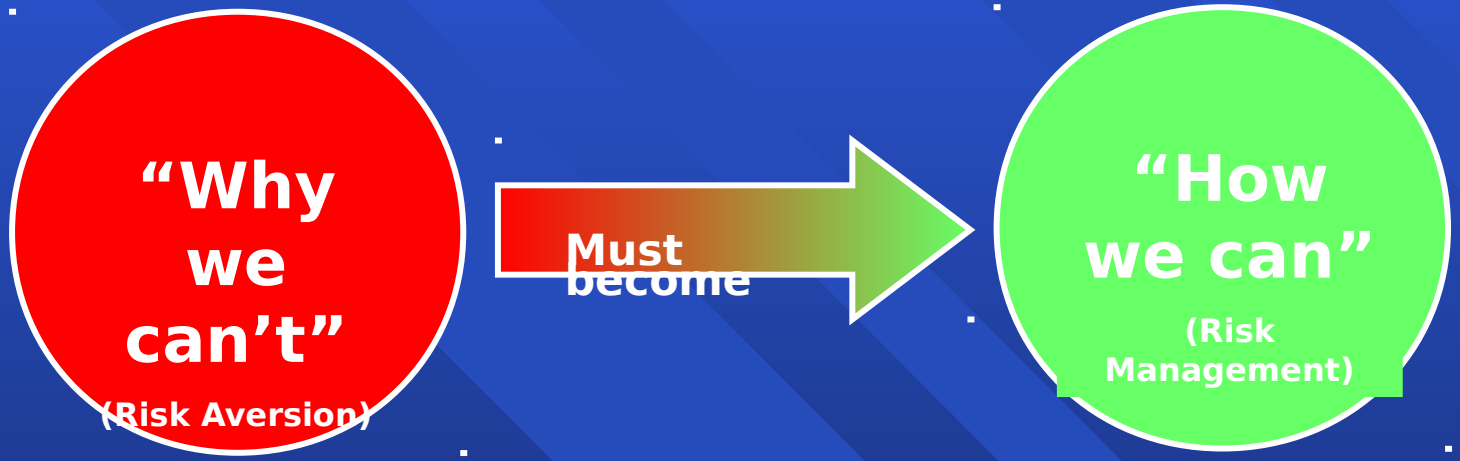
AF- Wide opportunities?
"You Bet!"

EVEN SMALL CHANGES YIELD SIGNIFICANT DOLLAR

Lightning Bolt #3
"Roadblock Busters"

PROBLEM:

true change agents in AF that think outside traditional bound



"Don't tell me no……tell me how!"

LEADERSHIP DEMAND FOR CHANGE IS PARAMOUNT

Lightning Bolt #3
"Roadblock Busters"

- Create Innovation "Wildcatters"
  - **Execute high-risk, high-potential experiments**
  - **Understand that it might not work**
  - **No retribution for failure related to risk**
  - **Build culture that understands not everything works -- We learn from failures, too**

"YOU'LL ALWAYS MISS 100% OF THE SHOTS YOU DON'T TAKE"
-- Wayne Gretzsky

Lightning Bolt #4
Breeding Innovators

PROBLEM: Short "one-time" exposures to reform ideas w
change ingrained culture of workforce

Organize, Train, and Equip:

- Acquisition "Change Culture University" -- centered at WPAFB
  - Executives will teach change
  - Traveling training teams provide continuous inoculations
  - Satellite campus at each center focused on their product line
  - Revolutionize curriculum at the Systems Acquisition School
  - Refresher course every year for everyone
  - "Board of Visitors"

Lightning Bolt #4
Breeding Innovators

Organize, Train, and Equip (continued):

- ***TARGET is to:***
  - Inject innovation and business practices at all levels of education
  - Leverage industry as partner in education
  - Create spiral of ever increasing capability and expertise
- **Hold Commanders and Executive Directors accountable for cultural change**
  - Results oriented metrics

LIKE OPERATORS, INNOVATORS MUST CONSTANTLY BE REFRESHED AND SUSTAINED

Lightning Bolt #5
Establish PEO/Service Contracts

PROBLEM:
Largest area of acquisition spending has no centralized focus

- **"Services" account for nearly half of all AF acquisition dollars**
- **Execution and direction are inconsistent**
- **Fails to apply "lessons learned" from program to program**
  - Performance of contracts not consistent

LEVERAGE KNOWLEDGE AND EXPERIENCE

Lightning Bolt #5 Establish PEO/Service Contracts

SOLUTION:
Establish PEO for Services

- **Focus on $100M+ or 300+ manpower slots**
- **Post award as important as pre-award**
- **Facilitates performance based services acquisition**
- **Responds to Congressional and OSD oversight concerns**

LEVERAGE KNOWLEDGE AND EXPERIENCE

Lightning Bolt #6
Knowledge Pipeline

PROBLEM:
are not tapping industry's potential to help us solve our probl

Can't afford to miss the "Idea of the Century!"

- ACE serves as clearinghouse to get our ideas to industry
- "911" hot line to get industry ideas to us. Use forums such as:
  - Group task force(s) under AF Science Advisory Board
  - Cooperative Research and Development Agreements (CRADAs)
- Facilitate and formally recognize long term relationships, e.g. TSSR, public/private partnerships
- Find methods to motivate/compensate industry to participate
- Search for ways to draw others not in "defense industry" into

PUSH/PULL INFORMATION AND IDEAS

Pilot Program

INITIAL CAPABILITY NEEDED NOW -- SPIRAL TO ADDED CAPABILITY

- SMALL DIAMETER BOMB

  - PROGRAM PRIORITIES IN DESCENDING ORDER ARE:

SCHEDULE, → **NEED NOW**

COST, → **AFFORDABLE**

AND **PERFORMANCE** → **SPIRAL ADDED CAPABILITIES**

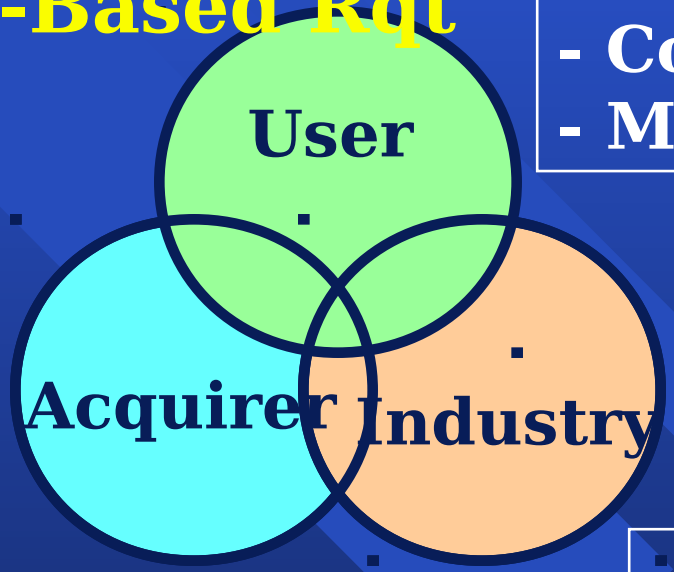
Multi-year Development Effort
- Stabilizes Funding And Contractor Plans
Spiral Development
Phase 1: Fixed Target
Phase 2: Moving Target
Threshold Aircraft
F-15E (Phase 1)
F-16/B-1 (Phase 2)

RISK MANAGEMENT

- We MUST Manage Risk Better
- Total Risk Avoidance Is Too Costly

COST AS AN INDEPENDENT VARIABLE (CAIV)

- Team Approach Critical!
- "Risk-Discounted" Trade Space
- Performance-Based Rqt

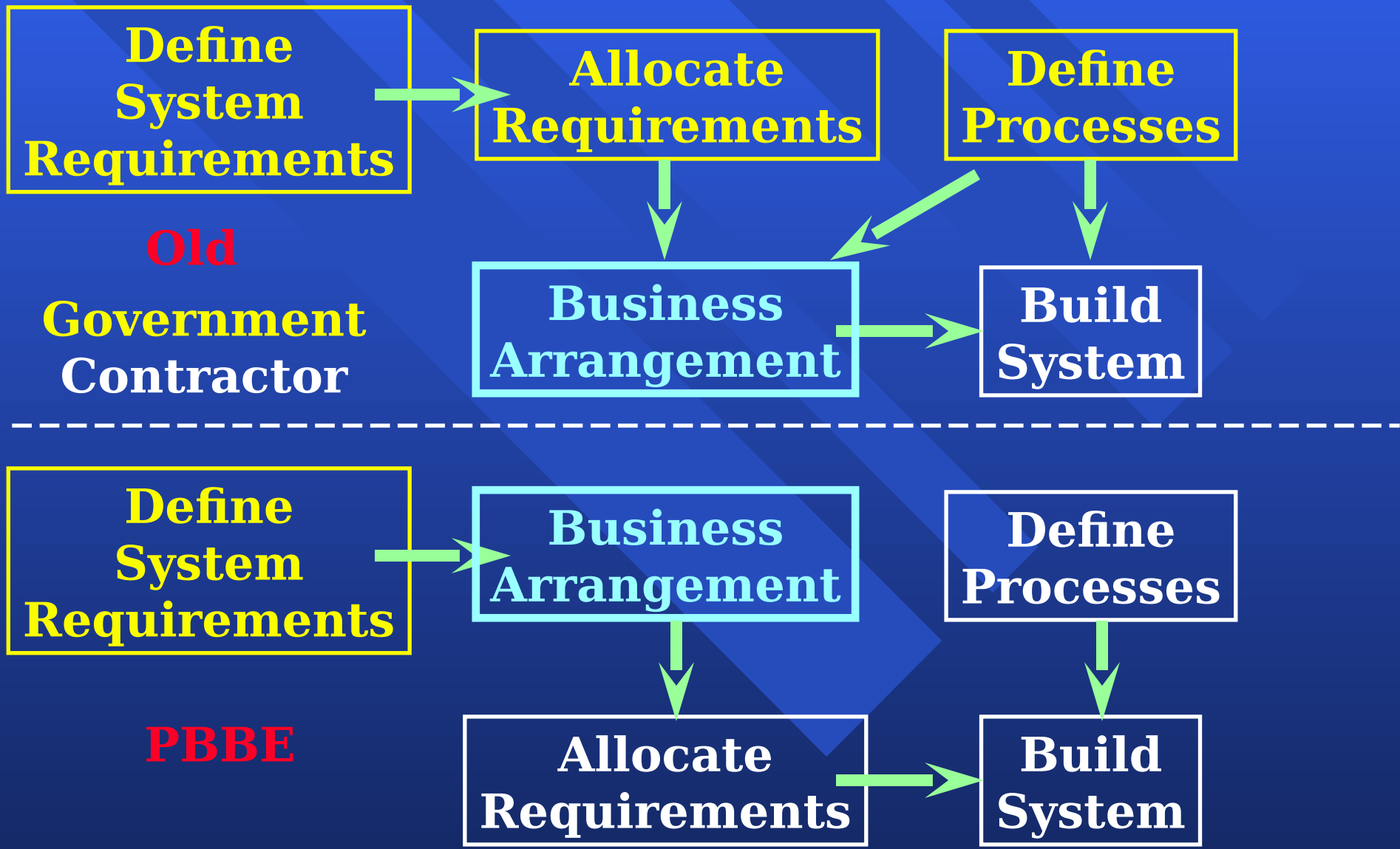


- Define Requirement
- Control $
- Make Trade Decisio

- Manage Contract
- Identify Trades

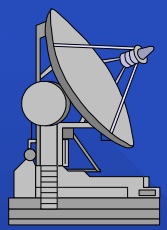
- Define Capabilitie
- Make Trade Inpu
- Build System

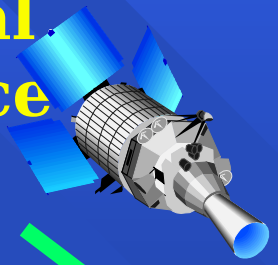
PERFORMANCE-BASED REQUIREMENTS



PAST PERFORMANCE INFORMATION (PPI)

Operational Performance



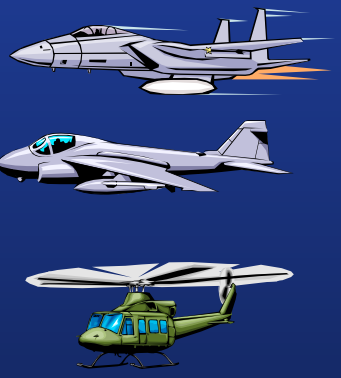


Risk

Relevance

Performance

All Services:
CPAR-like
PPI Collection

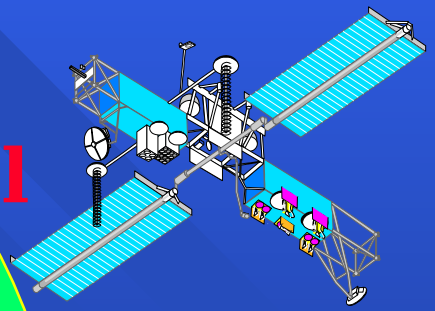


Collected/
Applied By
Business
Sector

- Systems
- Services
- Info Tech
- Ops Support

- CPARs
- Surveys
- Other Data

COMMERCIAL PRACTICES

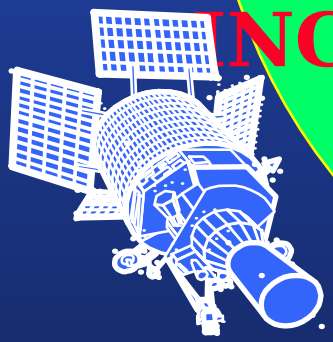


OPERATION SERVICES

Commercial Space Opportunities Study (CSOS)

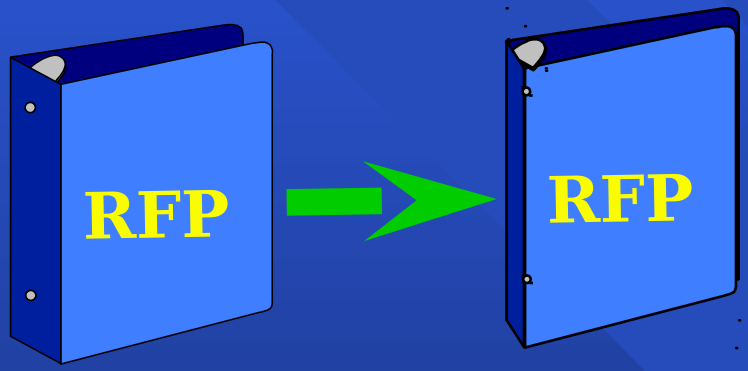
CONTRACT INCENTIVES

MARKET RESEARCH



REDUCED COMPLEXITY

Reduced RFP Size



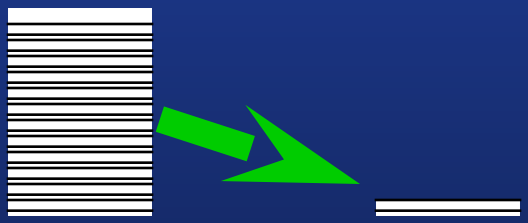
Electronic Applications

Integrated Documents

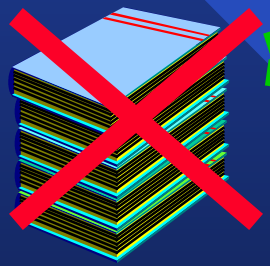
- Govt SOO
- Contr SOW
- IMP
- IMS

Single Process Initiative

Reduced CDRLs

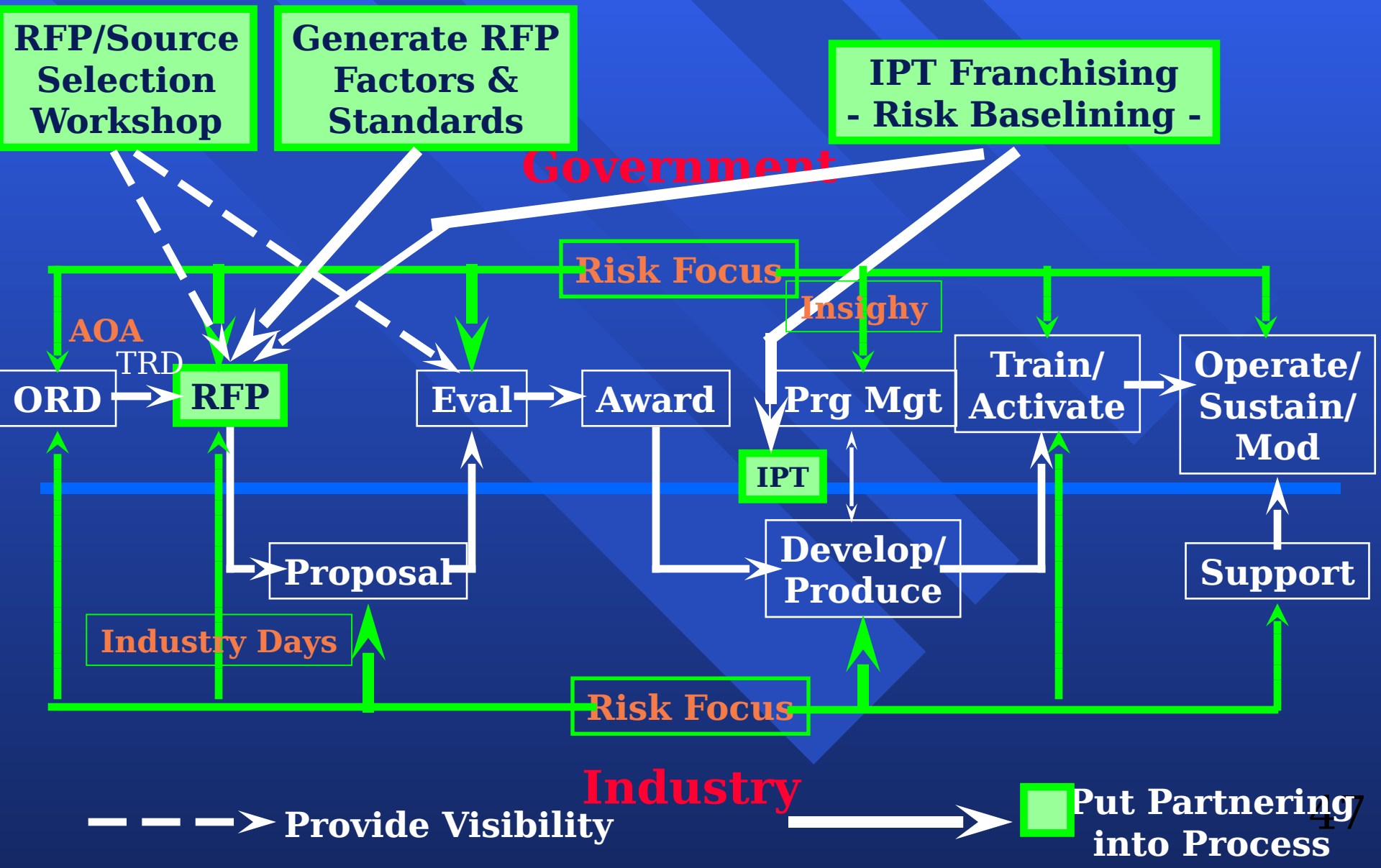


Slashed Mil Specs/Stds



COTS

Partnering Applications



ACQUISITION PROCESS

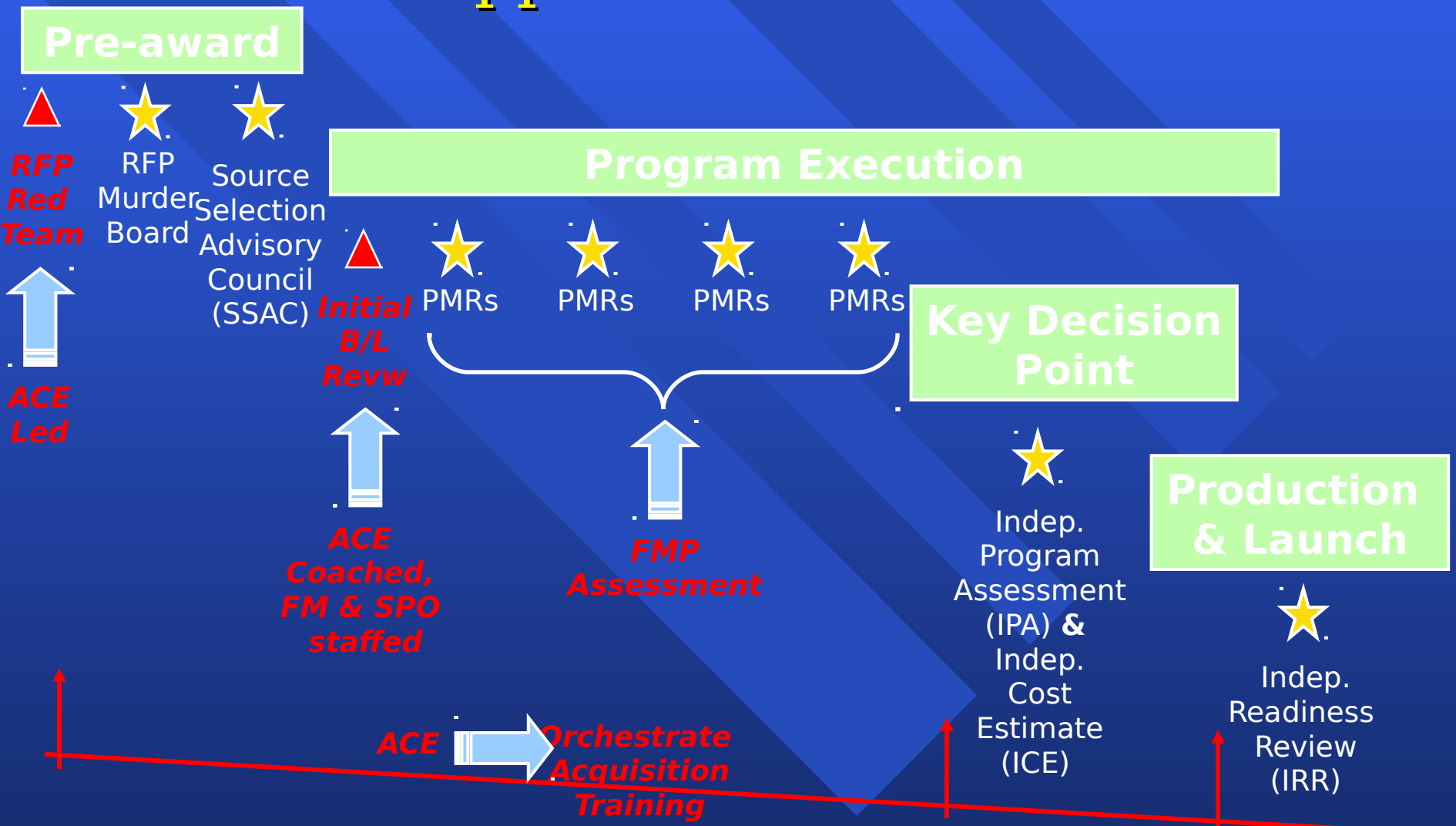
Support User

- Determine who are the users?
- Learn about Users:
  - Mission and command structure
  - How user employs product /operates
  - Problems/challenges that user faces
  - Priorities -- from higher headquarters to operator

What's the Same between DoD 5000 & Draft USECAF Space Acq Policy

- Key Documentation: MNS, ORD, APB, TEMP, ADM, SAMP
- Requirements Process: CJCS 3170 still in effect
- Reporting: SARs and UCRs
- Acquisition Phases: Similar to DoD 5000, but emphasis is on development and launch vs O&M costs
- Emphasis on: Decision Cycle Time Reduction & Evolutionary Acquisition to field more capable systems faster
- The need to do the following as part of the Acquisition Process:
  - Consider technology from govt labs as well as industry
  - Conduct market research & analysis of multiple concepts
  - Perform independent technology assessments
  - Provide a program protection plan

Commander's Assessment & Acquisition Support Framework



Note: AST functions transition to ACE

DEFENSE ACQUISITION DESKBOOK

(On Line Edition Updated Monthly)

Location: http://www.deskbook.osd.mil

ACQUISITION PROCESS

Developing an Acquisition Strategy

- **Team Formation**
  - Determine Team Structure
- **Risk Analysis**
  - Identify Major Risks
- **Industry Involvement**
  - Need Industry's assessment of major risks
- **Statement of Objectives (SOO)**
  - Performance based statement of what is needed
- **Acquisition Strategy Panel (ASP)**
  - Senior leadership approval of acquisition strategy
- **Single Acquisition Management Plan (SAMP)**
  - Documents approved strategy, lays out plan for execution

ACQUISITION PROCESS

Developing a Technical Baseline

- **Detailed Analysis of Requirements**
  - Thoroughly understand what meets customer's needs
  - Prioritized
- **Identify "Trades Space" in Requirements**
  - Alternatives/Options that meet needs
- **Assess Readiness Applicable Technologies**
  - How much development is necessary vs.. commercial off-the-shelf
- **Technical Requirements Document**
  - Detailed statement of prioritized needs and possible "trades"
- **Industry Feedback**
  - Make sure industry understands requirements

ACQUISITION PROCESS

Request for Proposal Development

- **Team Training**
  - Instruct members on best writing techniques based on lessons learned
- **Write Solicitation**
  - List term & conditions, technical requirements documents, other constraints or alternatives
- **Publish "Draft" Request for Proposals**
  - Is the "Draft" clear to industry or ambiguous?
- **Update "Draft" Request for Proposals**
  - Eliminate ambiguities, include good recommendations
- **Publish Final Request for Proposals**
  - Contractor develops proposal based on Final Request for Proposal

ACQUISITION PROCESS

Source Selection Activities

- **Team Training**
  - Source selection rules and procedures--designed to ensure fairness
- **Develop Source Selection Plan**
  - Describes “How” evaluation/selection process is done
- **Evaluate Proposals**
  - Rates Offerors based on technical, cost, risks, past performance
- **Brief Source Selection Authority**
  - Determines winner based on “Best Value” to Air Force
- **Award Contract to Winner**
- **De-Brief Offerors**
  - Explain to losing offeror why he lost

ACQUISITION PROCESS

Contract Execution

- **Monitor Contractor's Performance**
  - Review cost, schedule, technical documents for potential problems
  - Integrate systems, work sustainability
- **Risk Management**
  - Continuously assess how well Contractor is meeting risk mitigation goals
  - Reassess and update mitigation plans if problems develop
- **Ensure Contractor Provides Product/Services that meet Contract Requirements**
  - Required before Air Force can accept delivery of hardware or services
- **Turn Over to Customer**

ACQUISITION PROCESS
Contract

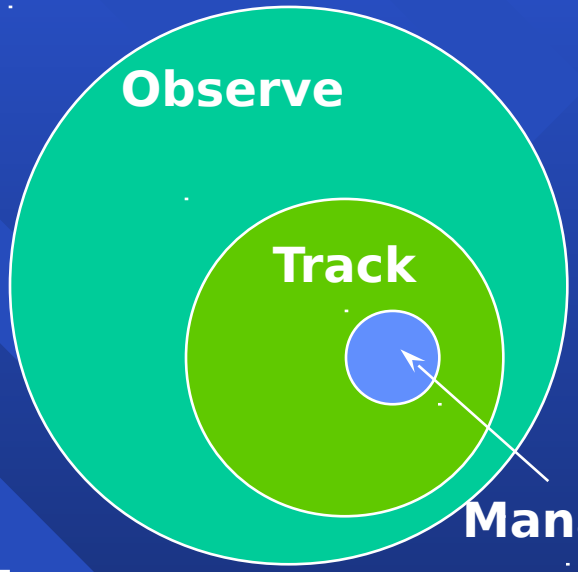
- Most Important Tool--Know It!!
- Basis For All Contractor Work
- Must Be Clear and Enforceable
- Be Wary of Constructive Change

ACQUISITION REFORM:
Tools for Success

OVERSIGHT vs. INSIGHT

Oversight

Insight



Available Resource Reduction

- Reduced CDRLs
- Contractor Control of Baseline
- Trust and Teaming: Critical Condition

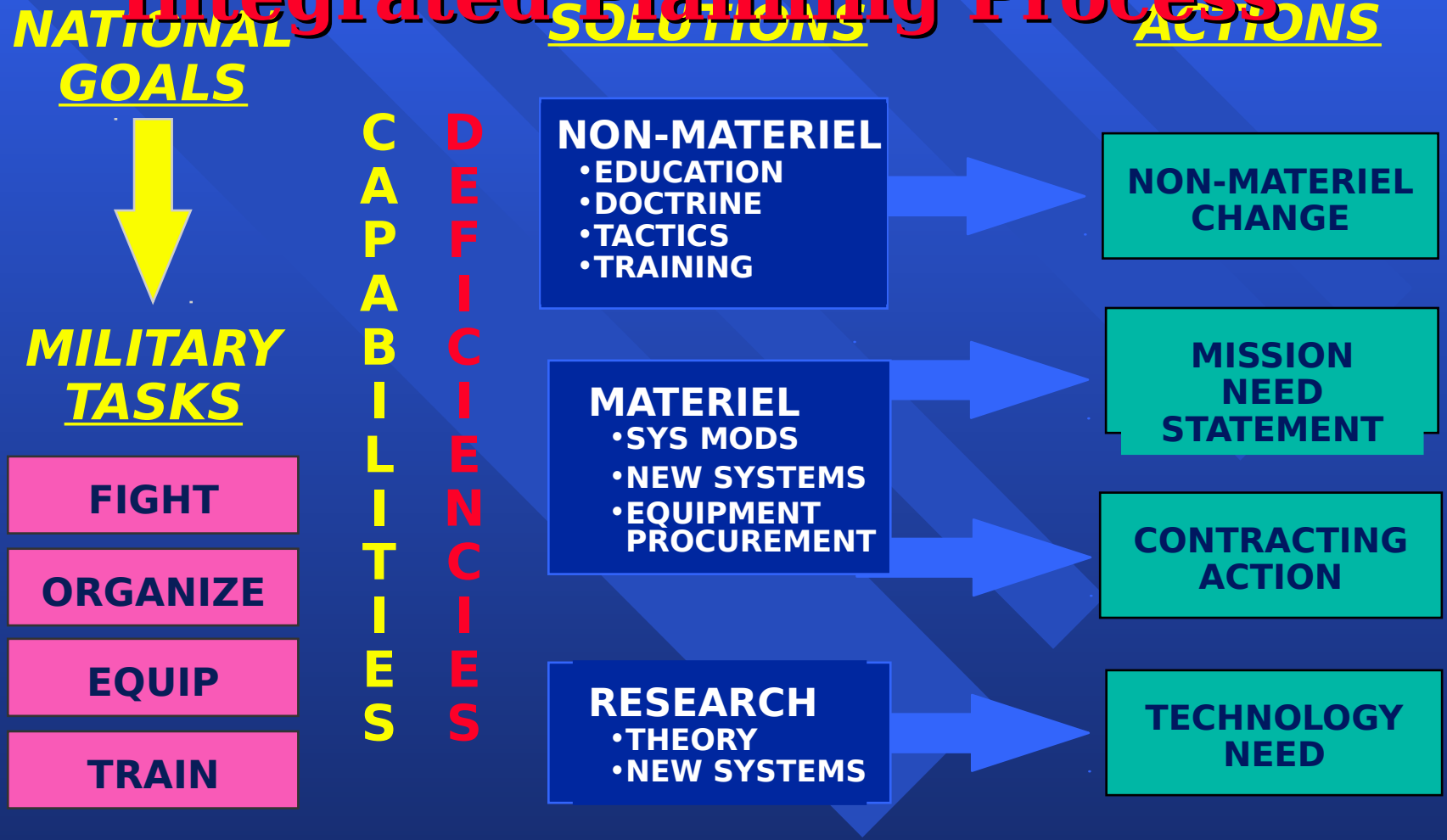
Acquisition Oversight

Oversight vs. Insight

- **Commercial Items**
- **Strictly Military Items**
- **How Critical is Mission Assurance**
- **Terms & Conditions (e.g., Contract type)**
- **Resources**
- **Etc.**

ACQUISITION OVERVIEW

Integrated Planning Process



ACQUISITION PROCESS: Key Players